

### **AMENDMENTS TO THE CLAIMS**

The following serves as a complete listing of the claims and replaces all prior claim listings:

#### **LISTING OF THE CLAIMS:**

Claim 1. (Currently Amended): An arachidonic acid-containing plant comprising ~~introduced~~ fatty acid synthetase genes associated with the biosynthesis of arachidonic acid, wherein the fatty acid synthetases associated with the biosynthesis of arachidonic acid are a  $\Delta 6$  desaturase consisting of the amino acid sequence of SEQ ID NO: 1 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 1, wherein the  $\Delta 6$  desaturase catalyzes a reaction of introducing an unsaturated bond at position  $\Delta 6$  of an aliphatic monocarboxylic acid;[[,]]  
a fatty-acid-chain elongase consisting of the amino acid sequence of SEQ ID NO: 3 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 3, wherein the fatty-acid-chain elongase catalyzes a reaction of elongating a carbon chain of an aliphatic monocarboxylic acid;[[, or]] and  
a  $\Delta 5$  desaturase consisting of the amino acid sequence of SEQ ID NO: 5 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 5, wherein the  $\Delta 5$  desaturase catalyzes a reaction of introducing an unsaturated bond at position  $\Delta 5$  of an aliphatic monocarboxylic acid;[[,]]  
and wherein the expression of a  $\Delta 15$  desaturase is suppressed in the plant.

Claims 2-6. (Canceled).

Claim 7. (Currently Amended): The arachidonic acid-containing plant as set forth in claim 1, wherein the gene encoding the  $\Delta 6$  desaturase is one of:

- (c) a gene having a base sequence of SEQ ID NO: 2 as an open reading frame; and
- (d) a gene that hybridizes under stringent conditions with a gene of a base sequence complementary to a base sequence of a gene identified by SEQ ID NO: 2, and that encodes a

protein having the amino acid sequence of SEQ ID NO: 1 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 1 ~~which catalyzes a reaction of introducing an unsaturated bond at position  $\Delta$ 6 of an aliphatic monocarboxylic acid.~~

Claim 8. (Canceled).

Claim 9. (Currently Amended): The arachidonic acid-containing plant as set forth in claim 1, wherein the gene encoding the fatty-acid-chain elongase is one of:

- (g) a gene having a base sequence of SEQ ID NO: 4 as an open reading frame; and
- (h) a gene that hybridizes under stringent conditions with a gene of a base sequence complementary to a base sequence of a gene identified by SEQ ID NO: 4, and that encodes a protein having the amino acid sequence of SEQ ID NO: 3 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 3 ~~which catalyzes a reaction of elongating a carbon chain an aliphatic monocarboxylic acid.~~

Claim 10. (Canceled).

Claim 11. (Currently Amended): The arachidonic acid-containing plant as set forth in claim 1, wherein the gene encoding the  $\Delta$ 5 desaturase is one of:

- (k) a gene having a base sequence of SEQ ID NO: 6 as an open reading frame; and
- (l) a gene that hybridizes under stringent conditions with a gene of a base sequence complementary to a base sequence of a gene identified by SEQ ID NO: 6, and that encodes a protein having the amino acid sequence of SEQ ID NO: 5 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 5 ~~which catalyzes a reaction of introducing an unsaturated bond at position  $\Delta$ 5 of an aliphatic monocarboxylic acid.~~

Claim 12. (Previously Presented): The arachidonic acid-containing plant as set forth in claim 1, wherein the fatty acid synthetases associated with the biosynthesis of arachidonic acid, or the genes encoding the fatty acid synthetases are derived from *Mortierella*.

Claim 13. (Previously Presented): The arachidonic acid-containing plant as set forth in claim 1, wherein the fatty acid synthetases associated with the biosynthesis of arachidonic acid, or the genes encoding the fatty acid synthetases are derived from *Mortierella alpina*.

Claim 14. (Canceled).

Claim 15. (Previously Presented): The arachidonic acid-containing plant as set forth in claim 1, wherein the expression of the  $\Delta 15$  desaturase is suppressed by an RNAi method.

Claim 16. (Previously Presented): The arachidonic acid-containing plant as set forth in claim 1, wherein the plant comprises a plant cell, a plant tissue, a plant callus, a plant seed, a grown plant individual, or offspring of the plant individual that contains arachidonic acid.

Claim 17. (Previously Presented): The arachidonic acid-containing plant as set forth in claim 1, wherein the plant comprises a soybean.

Claims 18-20. (Canceled).

Claim 21. (Currently Amended): An arachidonic acid-containing plant preparation kit for preparing the arachidonic acid-containing plant of claim 1, comprising:

a recombinant expression vector including a promoter and genes ~~encoding fatty acid synthetases associated with the biosynthesis of arachidonic acid~~ encoding

a  $\Delta 6$  desaturase consisting of the amino acid sequence of SEQ ID NO: 1 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 1, wherein the  $\Delta 6$  desaturase catalyzes a reaction of introducing an unsaturated bond at position  $\Delta 6$  of an aliphatic monocarboxylic acid;

a fatty-acid-chain elongase consisting of the amino acid sequence of SEQ ID NO: 3 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 3, wherein the fatty-acid-chain elongase catalyzes a reaction of elongating a carbon chain of an aliphatic monocarboxylic acid; and

a  $\Delta 5$  desaturase consisting of the amino acid sequence of SEQ ID NO: 5 or the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one to twenty amino acids of SEQ ID NO: 5, wherein the  $\Delta 5$  desaturase catalyzes a reaction of introducing an unsaturated bond at position  $\Delta 5$  of an aliphatic monocarboxylic acid.

Claim 22. (Original): The arachidonic acid-containing plant preparation kit as set forth in claim 21, further comprising a set of reagents for introducing the recombinant expression vector into a plant cell.